# LIST OF CONTENTS

## Number 1


| | | |
|---|---|---|
| **W. D. Duncan, T. J. Norton, D. J. Robertson, J. M. D. Strachan, J. E. Harris, C. R. Cunningham, P. A. R. Ade and W. S. Holland** | 1 | Long wavelength (sub-mm) telescope simulator |
| **L. S. Vasilenko, A. A. Kovalyov and N. N. Rubtsova** | 17 | Selectivity improvement of air pollution detection by using optothermal laser spectroscopy |
| **P. F. Miller and H. A. Gebbie** | 23 | Stimulated emission of atmospheric water vapour between $2\,cm^{-1}$ and $30\,cm^{-1}$ photoinduced by infrared radiation |
| **S. P. Varma** | 33 | Infrared irradiance measurement of sources |
| **N. L. Bazhenov, S. I. Gasanov and V. I. Ivanov-Omskii** | 37 | Excess currents in narrow gap $Cd_xHg_{1-x}Te$ p–n junctions |
| **R. K. Bhan, S. K. Lomash and K. C. Chhabra** | 43 | A method for determining the yield of indium bump contacts for integration in hybrid focal plane arrays at room temperature |
| **Manju Arora and Man Mohan Pradhan** | 49 | FIR absorption studies of neodymium sulphate by FTIR at low temperatures |
| **D. Gupta and S. P. Varma** | 55 | Specular reflectance of silicon and germanium at variable angles of incidence in the infrared region |
| **C. S. Olsen, N. M. Haegel, A. M. White, J. E. Huffman, F. F. Kinoshita and J. W. Beeman** | 61 | Near-contact diffusion and compensation in extrinsic photoconductors |
| **B. Wyncke, F. Bréhat and D. Guérard** | 67 | Far-infrared reflectivity spectra of cesium dihydrogen arsenate, in para- and ferroelectric phases |
| **M. M. Jevtić and M. B. Živanov** | 75 | Infrared plasma reflectivity minimum in heavily doped n-Si |
| **Vishnu Gopal, R. Ashokan and A. K. Gupta** | 83 | A general optical characterization method for determining the composition of $Hg_{1-x}Cd_xTe$ samples |
| **J. R. Birch** | 89 | Systematic errors in dispersive Fourier transform spectroscopy in a non-vacuum environment |
| **R. R. Reddy, M. Ravi Kumar and T. V. R. Rao** | 95 | Studies on the opto-electronic properties of alkali halides from optical electronegativities |
| **R. R. Reddy, M. Ravi Kumar and T. V. R. Rao** | 99 | Studies on the opto-electronic properties of III–V and II–VI group semiconductors from optical electronegativities |
| **R. R. Reddy, M. Ravi Kumar and T. V. R. Rao** | 103 | Temperature and concentration dependence of energy gap and refractive index in certain mixed crystals and semiconductors |

*Research Note*
**A. H. Lettington and Q. H. Hong** 109 A discrete modulation transfer function for focal plane arrays

**Forthcoming Conferences** 115

## Number 2

*Review*
**K. H. Herrmann, V. Melzer and U. Müller** 117 Interband and intraband contributions to refractive index and dispersion in narrow-gap semiconductors

**S. Marchetti, M. Giorgi, C. Lazzari, V. Palleschi and R. Simili** 137 Fast detection in the near and medium infrared by means of transverse Dember effect in anisotropic PbS and PbSe films

**P. F. Miller and H. A. Gebbie** 143 Temporal effects in millimetre wave aerosol spectra and the influence of infrared radiation

**R. T. Kuroda and E. Garmire** 153 Novel differentially strained p-doped quantum well infrared detector

**D. B. Kushev, N. N. Zheleva, M. I. Gyulmezov and M. H. Koparanova** 163 An envelope method for determination of the optical constants of absorptive films on absorptive substrates

**M. A. Havstad, D. L. Brown, J. D. Maltby, J. L. Ebert and S. A. Self** 169 A radiation source for both the visible and the infrared

**John Howard** 175 A new multi-channel heterodyne polarimeter for plasma current and electron density measurements

**L. L. Long, M. R. Querry, R. J. Bell and R. W. Alexander** 191 Optical properties of calcite and gypsum in crystalline and powdered form in the infrared and far-infrared

**Pingmao Xu** 203 Effect of the surrounding substrate on the responsivity of a pyroelectric detector

**Fei-Ming Tong and N. M. Ravindra** 207 Optical properties of $Hg_{1-x}Cd_xTe$

**D. P. Godwin and R. J. Butcher** 213 Frequency measurements in the 10 $\mu$m spectrum of $^{11}BCl_3$

**Forthcoming Conferences** i

## Number 3

**D. P. Scherrer and F. K. Kneubühl** 227 New phenomena related to pulsed far-infrared superradiant and Raman emissions

**P. Berberich, M. Chiusuri, S. Cunsolo, P. Dore, H. Kinder and C. P. Varsamis** 269 Far-infrared spectra of imperfect YBaCuO films on Si substrates

**C. Boschetti, P. H. O. Rappl, A. Y. Ueta and I. N. Bandeira** 281 Growth of narrow gap epilayers and *p–n* junctions on silicon for infrared detectors arrays

| | | |
|---|---|---|
| **G. V. Tchlenova, A. A. Vigasin, J.-P. Bouanich and C. Boulet** | 289 | The nature of the absorption bandshape density evolution for the first overtone of CO compressed by $N_2$ |
| **J. R. Birch, C. A. Bentley and J. P. Llewellyn** | 299 | Magneto-optical effects in ferrofluids at near millimetre wavelengths |
| **J. A. A. Engelbrecht, M. Walden and A. Dupnock** | 303 | Non-destructive characterization of dual epilayer silicon structures |
| **Wafaa A. Gobba, J. D. Patterson and S. L. Lehoczky** | 311 | A comparison between electron mobilities in $Hg_{1-x}Mn_xTe$ and $Hg_{1-x}Cd_xTe$ |
| **Xu-Sheng Wang, Jin-Xiu Gao, Shi-Dong Cai and Jian-Qi Zhang** | 323 | Preparation and measurement of $LiTaO_3$ type II pyroelectric detectors |
| **A. Hadni and X. Gerbaux** | 327 | How to increase S/N ratio by 10:1 in FIR transmission spectroscopy of high extinction index materials |
| **B. R. K. Gupta** | 333 | Static and thermoelastic properties of alkali cyanide crystals |
| **Corrigenda** | 337 | |
| **Forthcoming Conferences** | 338 | |


## Number 4


| | | |
|---|---|---|
| **W. Schatz, M. A. Heusinger, R. S. Nebosis, K. F. Renk and P. T. Lang** | 339 | 100 ps far-infrared laser pulses from optically pumped $D_2O$ |
| **R. Bischof, I. Maran and W. Seidenbusch** | 345 | Tunable InSb detectors under uniaxial and hydrostatic pressure |
| **C. Nieswand, M. R. Siegrist and M. Urban** | 351 | A new pulsed FIR laser line in $CH_3F$ |
| **N. L. Bazhenov, A. M. Andrukhiv and V. I. Ivanov-Omskii** | 357 | Carrier lifetime in $Zn_xCd_yHg_{1-x-y}Te$: calculation and experiment |
| **Fielding Brown and James Partan** | 365 | Linear and nonlinear response of the Avalanche Breakdown far-infrared photodetector |
| **Guoquan Dong and Zhengzhi Li** | 371 | Influence of wind on the infrared radiance statistics of vegetation canopies |
| **B. A. Akimov, L. I. Ryabova, V. N. Shumskiy and N. I. Petikov** | 375 | An operating regime based on switching effects for photodetectors of $Pb_{1-x}Sn_xTe$(In) MBE films |
| **K. C. Liddiard** | 379 | Application of interferometric enhancement to self-absorbing thin film thermal IR detectors |
| **S. E. Church, M. J. Griffin, P. A. R. Ade, M. C. Price, R. J. Emery and B. M. Swinyard** | 389 | Calibration and performance of doped-Ge photoconductors for the ISO Long Wavelength Spectrometer |
| **D. Courtois, D. Delahaigue and C. Thiebeaux** | 407 | Detection of thermal emission from atmospheric gases by laser heterodyne radiometry |
| **S. L. Prunty, H. M. Mansfield and F. D. O'Shea** | 415 | Polarization modulation in an optically-pumped far-infrared laser |

| | | |
|---|---|---|
| **V. Larochelle, D. Hutt, D. Bonnier and J.-M. Thériault** | 421 | 1.54/10.6-$\mu$m eyesafe laser rangefinders performance under adverse weather conditions |
| *Technical Note* **M. M. Pradhan** | 441 | Infrared absorption at 1127 $cm^{-1}$ in silicon |
| **Book Review** | 443 | |
| **Forthcoming Conferences** | 444 | |


## Number 5


| | | |
|---|---|---|
| **Nobumitsu Hirose, Yuichi Harada, Matsuo Sekine, Shigeru Yoshimori and Mitsuo Kawamura** | 445 | All-Nb thin film microbridge-type Josephson junction for submillimeter-wave detection |
| **E. S. Ferdinandov and V. I. Tsanev** | 457 | Mathematical modelling of the apparatus channel of an infrared remote sensing system |
| **H. Haidner, P. Kipfer, J. T. Sheridan, J. Schwider, N. Streibl, M. Collischon, J. Hutfless and M. März** | 467 | Diffraction grating with rectangular grooves exceeding 80% diffraction efficiency |
| **L. E. Fedichkin, V. I. Ryzhii and V. V. V'yurkov** | 477 | A novel tunable infrared detector based on a quantum ballistic channel |
| **P. T. Lang, K. F. Mast, K. F. Renk and W. Schatz** | 481 | Photoresponse of a miniaturized metal film bolometer to ultrashort mid- and far-infrared laser pulses |
| **N. Neumann and S. Möhling** | 487 | The influence of heat exchange between a sensitive element and its surroundings on the specific detectivity of pyroelectric detectors |
| **Armand Hadni, Xavier Gerbaux and Masato Tazawa** | 501 | Surface layers and far infrared spectra of high-$T$c superconductors |
| **Jerald R. Izatt, Wolfgang Schatz and Karl F. Renk** | 513 | Length and pressure dependence of the tuning spectrum produced by $CH_3F$ double Raman lasers |
| **M. Makhlouf, S. Sazhin, C. Leys, D. Toebaert and P. Wild** | 525 | Numerical analysis of the electron energy distribution function in a $CO_2$ laser discharge |
| **P. Buratti, O. Tudisco and M. Zerbini** | 533 | A broadband light collection system for ECE diagnostics on the FTU tokamak |
| *Research Note* **G. Magyar and J. O'Rourke** | 543 | Depolarization of far infrared laser beams in inconel and alumina waveguides |
| **Forthcoming Conferences** | 547 | |


## Number 6


| | | |
|---|---|---|
| **P. G. J. Irwin, P. A. R. Ade, S. B. Calcutt, F. W. Taylor, J. S. Seeley, R. Hunneman and L. Walton** | 549 | Investigation of dielectric spaced resonant mesh filter designs for PMIRR |

| | | |
|---|---|---|
| **Józef Piotrowski, Alina Józwikowska, Krzysztof Józwikowski and Robert Ciupa** | 565 | Numerical analysis of longwavelength extracted photodiodes |
| **S. C. Goyal, Narender Singh and R. P. Goyal** | 573 | Study of photo-elastic behaviour of mixed alkali halides |
| **H. A. Gebbie** | 575 | Quantum based temperature standards |
| **N. Ivanović, M. Srećković, A. Milosavljević, B. Cekić, M. Manasijević, N. Popović, N. Backović, M. Djurić, A. Kunosić, K. Nemeš, G. Čogurić and U. Mioč** | 579 | $Nd^{3+}$:YAG laser interaction with intermetallic compounds $Hf_2Rh$ and $Hf_2Co$ |
| **V. V. Tetyorkin, V. B. Alenberg, F. F. Sizov, S. N. Davidenko and V. Yu. Chopik** | 589 | Interface states in PbSnTe/PbTeS heterodiodes |
| **M. Arora, M. M. Pradhan and M. C. Bansal** | 595 | Study of vibrational spectra of lanthanum sulphate nonahydrate at different temperatures in the region from 4000–50 $cm^{-1}$ |
| **Z. Djurić, Z. Jakšić, A. Vujanić and M. Smiljanić** | 601 | A simple approximative method for determination of Auger 1 lifetime in degenerate narrow gap semiconductors |
| **M. Papini** | 607 | Study of the relationship between particle sizes of polymer powders and their radiative properties |
| **Sarbajit Ghosal, Jon L. Ebert and Sidney A. Self** | 621 | The infrared refractive indices of $CHBr_3$, $CCl_4$ and $CS_2$ |
| **Gyeong-il Kweon, N. M. Lawandy and A. S. L. Gomes** | 629 | Superradiance effects on the infrared absorption and vibrational temperature of optically pumped molecules |
| **András Miklós, Dane Bicanic and Jan de Bont** | 635 | The CO laser photoacoustic absorption spectrum of isoprene—a reactive biogenic forest emittant |
| **A. D. Deleva, Z. Y. Peshev and Z. I. Aneva** | 641 | Temporal intracavity detection of parasitic infrared absorption in Ti:sapphire lasers |
| **A. Medvid' and M. Ogrinsh** | 647 | Photoconductivity of a semiconductor with a transverse gradient of drift velocity of charge carriers |
| **S. D. Darchuk, F. F. Sizov and L. A. Korovina** | 655 | Stimulated recombination from the defect level in doped lead telluride |
| **G. R. Sudhakaran, M. Jackson, R. M. Lees, Li-Hong Xu and I. Mukhopadhyay** | 661 | Stark spectroscopy of $^{13}CD_3OH$ with the HCN laser |
| *Research Note* | | |
| **Narender Singh, R. P. Goyal and S. C. Goyal** | 667 | Study of strain optical constants of mixed lithium halides |
| **Forthcoming Conferences** | 669 | |